The Claims

What is claimed is:

1. A turbomachine comprising at least one cavity having a cross-section with a shape selected from the group consisting of an annular shape and a ring-segment-shape, and at least one means for inducing and maintaining a forced flow with at least a tangentially oriented velocity component, the means being arranged inside the cavity.

2. The turbomachine of claim 1, wherein the means are configured and arranged to induce a forced flow that is inclined in an axial direction relative to a circumferential direction by an inclination angle of less than 30°.

3. The turbomachine of claim 2, wherein the inclination angle is less than 10°.

4. The turbomachine of claim 1, wherein the means for inducing and maintaining a forced flow comprises at least one ejector that is operable with a motive fluid and the blowout direction is oriented such that at least a portion of outflow impulse is oriented in a circumferential direction of the cavity.

5. The turbomachine of claim 4, wherein at least two ejectors oriented in the same blowout direction are arranged equidistantly in the circumferential direction of the cavity.

6. The turbomachine of claim 4, wherein the cavity comprises an extraction point, the extraction point being in fluid communication with a suction side of a fan, and a pressure side of said fan being in fluid communication with the ejector.

7. The turbomachine of claim 6, wherein an ejector is arranged at a point of the cavity situated at a location selected from the group consisting of a highest

geodetic level of the cavity and a lowest geodetic level of the cavity, and the extraction point connected to said ejector via the fan is disposed at an opposite point of the cavity.

8. The turbomachine of claim 6, wherein an extraction point is disposed directly upstream of an ejector, relative to a blowout direction of said ejector, and said extraction point is connected to an ejector disposed at a different circumferential position of the annular cavity.

9. The turbomachine of claim 1, wherein the cavity is formed between an inner casing and an outer casing of the turbomachine.

10. The turbomachine of claim 9, wherein the inner casing is selected from the group consisting of a combustor plenum and a combustor wall of a gas turbine, and wherein the outer casing is an outer shell of the gas turbine.

11. The turbomachine of claim 1, further comprising openings for drawing off fluid from the cavity and disposed at circumferentially symmetrical positions in the cavity.

12. The turbomachine of claim 11, wherein the openings are selected from the group consisting of an annular gap, a plurality of ring-segment-shaped gaps, holes, and combinations thereof, and wherein the openings are disposed in a circumferentially symmetrical manner.

13. The turbomachine of claim 11, wherein the openings are in fluid communication with a hot-gas path of a gas turbine.

14. A method for operating a turbomachine comprising at least one cavity having a cross-section with a shape selected from the group consisting of an annular shape and a ring-segment-shape, and at least one means for inducing and maintaining a forced flow with at least a tangentially oriented velocity component, the means being arranged inside the cavity, the method comprising:

forcing a flow through the cavity at standstill of the turbomachine, the flow being tangentially oriented at least with one velocity component.

15. The method of claim 14, further comprising shutting down the turbomachine, and forcing the flow during a cooling period following shutdown.

16. The method of claim 14, wherein the flow is forced by a motive fluid emerging from ejectors.

17. The method of claim 14, further comprising discharging fluid into a hot-gas path of a gas turbine through openings.

18. The method of claim 16, further comprising extracting motive fluid for the ejectors from the cavity, thus essentially circulating a closed volume.

19. The method of claim 14, wherein the flow is a circumferential flow.

20. The method of claim 14, wherein the flow is a helical flow with a helix angle less than 30°.

21. The method of claim 20, wherein the helix angle is less than 10°.